TECHNICAL NOTES

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Growth and Yield of a Young Red Pine Plantation in Northern Minnesota

The growth and yield potential of an intensively managed young red pine (Pinus resinosa) plantation is demonstrated by a planting on the Pike Bay Experimental Forest near Cass Lake, Minn. This plantation was established in the spring of 1937 to test red pine from a number of different seed sources in the United States and Canada. Aside from the genetics aspects of the study the growth and yield of the plantation show what could be done if comparable lands in this area are given similar care.

Red pine 2-1 planting stock was planted at a 4x4-foot spacing on an area that had been cleared, plowed, and disked. In 1937 and for 3 years thereafter all herbaceous and woody competition was controlled by weeding.

In 1951 and 1956 thinnings were made to prevent mortality losses. The cutting removed trees of poorer quality and form. An effort was made, however, to preserve the different seed sources, which were represented by separate rows in the plantation.

From 1937 to 1951 natural tree mortality and damage due to release work reduced the number of trees per acre from about 2,720 to 2,417, a loss of about 300 trees. The close spacing (4x4 feet) in this planting was not particularly detrimental during the first 15 years of growth. The first thinning at age 15 left 1,500 trees, which is a heavier stocking than the usual initial stocking. Only 9 trees were lost between 1951 and 1956. The pulpwood growth for the 5-year period was 17.1 cords, much of it as a result of ingrowth.

The stands before and after cutting in 1951 and 1956 and the growth for this period are shown in table 1.

Table 1.--Growth and yield per acre in a red pine plantation in northern Minnesota[1/]

Item	1951			1956			Growth 1951-1956
	Before cut	After cut	Cut	Before cut	After cut	Cut	
Number trees	2,417	1,505	912	1,496	746	750	-9
Basal area - square feet	139	100	39	164	94	70	64
Cubic feet	1,268	938	330	2,211	1,293	918	1,273
Cordwood	8.8	7.7	1.1	24.8	15.0	9.8	17.1

1/ Number of trees, basal area, and cubic feet are for trees of all sizes. Cordwood volumes are for those trees which contain at least one stick of pulpwood to a 3-inch top diameter inside bark.

(over)

In pulpwood and post material to a 3-inch top d.i.b. and larger, 1.1 standard cords per acre were harvested in 1951. Some 9.8 cords of this same kind of wood were cut in 1956. In addition, each cut produced 4.5 cords per acre of fuelwood and stake material from wood with a top d.i.b. between 1 and 3 inches.

The total yield of merchantable wood from this plantation has amounted to almost 26 cords in 22 years from seed. To date 10.9 cords have been harvested and 15.0 cords left as growing stock. The residual stand in the spring of 1956 averages 32 feet in height and 4.4 inches in diameter.

By comparison with other red pine plantations on the Pike Bay Experimental Forest this plantation has been most successful. The good results can be attributed in large measure to the complete job of ground preparation and the effective release work done during the early life of the stand.

ZIGMOND A. ZASADA, Forester
ROBERT E. BUCKMAN, Forester

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